Java Programming 9th edition Farrell Test Bank

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TRUE/FALSE

1 : A variable can hold more than one value at a time.
A : true
B : false

Correct Answer : B

2 : The int data type is the most commonly used integer type.
A : true
B : false

Correct Answer : A

3 : Multiplication, division, and remainder always take place after addition or subtraction in an expression.
A : true
B : false

Correct Answer : B

4 : The term parse means to break into component parts.
A : true
B : false

Correct Answer : A

5 : You can create a confirm dialog box with five arguments.
A : true
B : false

Correct Answer : A

6 : You can declare as many variables in a statement as you want, as long as the variables are different data types.
A : true
B : false

Correct Answer : B

7 : The expression boolean isTenLarger = (10 < 5) will produce a value of true.
A : true
B : false

Correct Answer : B

8 : Even if a statement occupies multiple lines, the statement is not complete until the semicolon is reached.
A : true
B : false

Correct Answer : A

9 : You are limited to declaring a maximum of three variables in a single statement.
A : true
B : false

Correct Answer : B

10 : The byte and short data types occupy less memory and can hold only smaller values.
A : true
B : false

Correct Answer : A

SHORT RESPONSE

11 : A variable declaration is a statement that reserves a named memory location. It includes what four elements?

Correct Answer : A data type that identifies the type of data that the variable will storeAn identifier that is the variable's nameAn optional assignment operator and assigned value, if you want a variable to contain an initial valueAn ending semicolon

12 : Define an integer and then list and describe the four integer data data types.

Correct Answer : An integer is a whole number without decimal places. The types byte, short, int, and long are all variations of the integer type. The int data type is the most commonly used integer type. A variable of type int can hold any whole number value from –2,147,483,648 to +2,147,483,647. The byte and short types occupy less memory and can hold only smaller values; the long type occupies more memory and can hold larger values.

13 : Describe how to use the boolean data type. Show two examples of a boolean variable assignment; one that uses true or false and one that uses a relational operator.

Correct Answer : ?Boolean logic is based on true or false comparisons. Whereas an int variable can hold millions of different values (at different times), a boolean variable can hold only one of two values—true or false. Besides assigning true and false, you also can assign a value to a Boolean variable based on the result of a comparison.boolean isItPayday = false;boolean isItPayday = (today="Friday");

14 : What is the difference between the float data type and the double data type?

Correct Answer : Java supports two floating-point data types: float and double. A float data type can hold floating-point values of up to six or seven significant digits of accuracy. A double data type requires more memory than a float, and can hold 14 or 15 significant digits of accuracy. The term significant digits refers to the mathematical accuracy of a value. For example, a float given the value 0.324616777 displays as 0.324617 because the value is accurate only to the sixth decimal position.

15 : What is an escape sequence and why would a Java programmer use it to store a character?

Correct Answer : You can store any character—including nonprinting characters such as a backspace or a tab—in a char variable. To store these characters, you can use an escape sequence, which always begins with a backslash followed by a character—the pair represents a single character. You might want to use an escape sequence when you want to produce console output on multiple lines in the command window without using multiple println() methods.

16 : Describe and give an example of operator precedence.

Correct Answer : Operator precedence refers to the rules for the order in which parts of a mathematical expression are evaluated. The multiplication, division, and remainder operators have the same precedence. Their precedence is higher than that for the addition and subtraction operators. Addition and subtraction have the same precedence. In other words, multiplication, division, and remainder always take place from left to right prior to addition or subtraction in an expression. For example, the following statement assigns 14 to result: int result = 2 + 3 * 4;.

17 : In Java, how is it possible to perform mathematical operations on operands with unlike types?

Correct Answer : When you perform arithmetic operations with operands of unlike types, Java chooses a unifying type for the result. The unifying type is the type to which all operands in an expression are converted so that they are compatible with each other. Java performs an implicit conversion; that is, it automatically converts nonconforming operands to the unifying type.

18 : Explain how you can override a unifying type imposed by Java. Show an example.

Correct Answer : You can purposely override the unifying type imposed by Java by performing a type cast. Type casting forces a value of one data type to be used as a value of another type. To perform a type cast, you use a cast operator, which is created by placing the desired result type in parentheses. Using a cast operator is an explicit conversion. The cast operator is followed by the variable or constant to be cast.Example:double bankBalance = 189.66;float weeklyBudget = (float) (bankBalance / 4);

19 : How can you create and use an input dialog box in Java?

Correct Answer : You can create an input dialog box using the showInputDialog() method. Six overloaded versions of this method are available, but the simplest version uses a single argument that is the prompt you want to display within the dialog box. The showInputDialog() method returns a String that represents a user’s response; this means that you can assign the showInputDialog() method to a String variable and the variable will hold the value that the user enters.

20 : How would you ask the user to confirm an action using a dialog box?

Correct Answer : A confirm dialog box that displays the options Yes, No, and Cancel can be created using the showConfirmDialog() method in the JOptionPane class. Four versions of the method are available; the simplest requires a parent component (which can be null) and the String prompt that is displayed in the box. The showConfirmDialog() method returns an integer containing one of three possible values: JOptionPane.YES_OPTION, JOptionPane.NO_OPTION, or JOptionPane.CANCEL_OPTION.

21 : Describe how the use of named constants can provide advantages over the use of literal

values.

Correct Answer : There are several good reasons to use the named constant rather than the literal one:- The number 20 is more easily recognized as the number of departments if it is associated with an identifier. Using named constants makes your programs easier to read and understand.?- If the number of departments in your organization changes, you would change the value of NUMBER_OF_DEPTS at one location within your program—where the constant is defined—rather than searching for every use of 20 to change it to a different number. Being able to make the change at one location saves you time, and prevents you from missing a reference to the number of departments.?- Even if you are willing to search for every instance of 20 in a program to change it to the new department number value, you might inadvertently change the value of one instance of 20 that is being used for something else, such as a payroll deduction value.?- Using named constants reduces typographical errors. For example, if you must include 20 at several places within a program, you might inadvertently type 10 or 200 for one of the instances, and the compiler will not recognize the mistake. However, if you use the identifier NUMBER_OF_DEPTS, the compiler will ensure that you spell it correctly.?- When you use a named constant in an expression, it stands out as different from a variable. For example, in the following arithmetic statement, it is easy to see which elements are variable and which are constant because the constants have been named conventionally using all uppercase letters and underscores to separate words:double payAmount = hoursWorked * STD_PAY_RATE - numDependents * DEDUCTION;?Although many programmers use named constants to stand for most of the constant values in their programs, many make an exception when using 0 or 1.

22 : Describe how the Scanner class works with the System.in object in order to provide flexibility. Provide an example of using the Scanner class with System.in.

Correct Answer : The System.in object is designed to read bytes only. Since it is common to accept data of other types, the Scanner object can connect to the System.in property. This creates a Scanner object that will be connected to the default input device.?Scanner inputDevice = new Scanner(System.in);

23 : 100 = salesAmount;?In terms of assignment operators, why is the above statement illegal?

Correct Answer : This assignment operator has a right-to-left associativity. Associativity is the order in which values are used with operators. An identifier that can appear on the left side of an assignment operator sometimes is referred to as an lvalue, and an item that can appear only on the right side of an assignment operator is an rvalue. A variable can be used as an lvalue or an rvalue, but a literal constant can only be an rvalue. Since 100 is a numeric constant, it is an rvalue, which is an item that can appear only on the right side of the assignment operator.

24 : Describe three ways in which a named constant differs from a variable.

Correct Answer : In its declaration statement, the data type of a named constant is preceded by the keyword final.A named constant can be assigned a value only once, and then it cannot be changed later in the program. Usually you initialize a named constant when you declare it; if you do not initialize the constant at declaration, it is known as a blank final, and you can assign a value later. Either way, you must assign a value to a constant before it is used.Named constants conventionally are given identifiers using all uppercase letters, using underscores as needed to separate words.

25 : Write the statement to declare an uninitialized integer value for salesAmt. Then write the statement to declare a constant named SALESAMT with a value of 20.99.

Correct Answer : int salesAmt;?final double SALESAMT = 20.99;

26 : Describe why it is important to assign an appropriate data type to variables in an application.

Correct Answer : If you attempt to assign a value that is too large for the data type of the variable, the compiler issues an error message, and the application does not execute. If you choose a data type that is larger than you need, you waste memory.

27 : Write the statement that will declare and assign two integer variables, salesAmt and costAmt, in a single statement. Assign values of your choice to the variables.

Correct Answer : int salesAmt = 100, costAmt = 15;?

28 : import javax.swing.JOptionPane;public class salesJune{ public static void main(String[] args) { int storeSales = 250; }}?In the above code, complete the statement that will display a message dialog box that will appear centered on the screen and will display the following text:Congratulations! June sales were $250!

Correct Answer : JOptionPane.showMessageDialog(null, "Congratulations! June sales were $" + storeSales + "!";

29 : final int COSTPERITEM = 10;double sales2012 = amtSold * COSTPERITEM;In the above statements, identify the named constant and describe how a programmer can recognize named constants.

Correct Answer : The named constant identifier is COSTPERITEM.Constant declaration statements use the final keyword.Constants are conventionally given identifiers in all uppercase letters.

30 : Write the statement that will declare a char data type named testScore that will hold a letter grade of your choice.

Correct Answer : char testScore = ‘A’;?

31 : public class YourGrade{ public static void main(String[] args) { int projectPoints = 89; System.out.print("Your grade for this class is "); System.out.print(projectPoints); System.out.println("%"); }}?Given the above code, what will be the output at the command prompt?

Correct Answer : Output will be as follows:Your grade for this class is 89%A blank line will follow the output.

MULTIPLE CHOICE

32 : A data item is ____ when it cannot be changed while a program is running.
A : variable
B : constant
C : primitive
D : literal

Correct Answer : B

33 : A ____ is a named memory location that you can use to store a value.
A : cast
B : variable
C : reference
D : primitive

Correct Answer : B

34 : Primitive types serve as the building blocks for more complex data types, called ____ types.
A : integer
B : literal
C : reference
D : data

Correct Answer : C

35 : ____ refers to the order in which values are used with operators.
A : Associativity
B : Initialization
C : Declaration
D : Floating

Correct Answer : A

36 : In Java, you use variables of type ____ to store integers, or whole numbers.
A : num
B : double
C : var
D : int

Correct Answer : D

37 : A(n) ____ variable can hold only one of two values: true or false.
A : integer
B : boolean
C : true
D : comparison

Correct Answer : B

38 : The term ____ refers to the mathematical accuracy of a value.
A : float data
B : real integers
C : significant digits
D : single-precision floating-point number

Correct Answer : C

39 : A ____ data type can hold 14 or 15 significant digits of accuracy.
A : double
B : float

C : char
D : boolean

Correct Answer : A

40 : You use the ____ data type to hold any single character.
A : single
B : char
C : byte
D : float

Correct Answer : B

41 : In Java, ____ is a built-in class that provides you with the means for storing and manipulating character strings.
A : Escape
B : Type
C : String
D : Character

Correct Answer : C

42 : You can store any character, including nonprinting characters such as a backspace or a tab, in a(n) ____ variable.
A : int
B : char
C : boolean
D : set

Correct Answer : B

43 : The characters ____ move the cursor to the next line when used within a println() statement.
A : /n
B :
C : .+
D : $

Correct Answer : B

44 : In Java, when a numeric variable is concatenated to a String using the ____, the entire expression becomes a String.
A : plus sign
B : equal sign
C : concatenate statement
D : string statement

Correct Answer : A

45 : You use ____ operators to perform calculations with values in your programs.
A : calculation
B : arithmetic
C : integer

D : precedence

Correct Answer : B

46 : _____ occurs when both of the operands are integers.
A : Data modeling
B : Type cast
C : Integer division
D : Unlike assignment

Correct Answer : C

47 : The percent sign is the _____ operator.
A : remainder
B : remaining
C : percentage
D : integer division

Correct Answer : A

48 : What is the value of result after the following statement is executed?int result = 2 + 3 * 4;
A : 9
B : 10
C : 14
D : 20

Correct Answer : C

49 : The _____ is the type to which all operands in an expression are converted so that they are compatible with each other.
A : unifying type
B : data type
C : numbered
D : primitive

Correct Answer : A

50 : A(n) _____ dialog box asks a question and provides a text field in which the user can enter a response.
A : question
B : JOptPane
C : confirm
D : input

Correct Answer : D

51 : Each primitive type in Java has a corresponding class contained in the java.lang package. These classes are called _____ classes.
A : case
B : primitive
C : type-wrapper
D : show

Correct Answer : C

52 : A(n) _____ dialog box typically displays the options Yes, No, and Cancel.
A : confirm
B : input
C : message
D : answer

Correct Answer : A

53 : Which of the following is NOT a component of a variable declaration statement?
A : data type identifier
B : ending colon
C : variable name
D : ending semicolon

Correct Answer : B

54 : You may declare an unlimited number of variables in a statement as long as the variables are _____.
A : the same data type
B : initialized to the same value
C : properly commented
D : floating point numbers

Correct Answer : A

55 : When a numeric variable is concatenated to a String, the entire expression becomes a(n) _____.
A : int
B : constant
C : method
D : String

Correct Answer : D

56 : Which escape sequence will move the cursor to the beginning of the current line?
A :
B :
C : \
D :

Correct Answer : B

57 : A(n) _____ is a simple data type.
A : reference type
B : lvalue
C : primitive type
D : unifying type

Correct Answer : C

58 : A(n) _____ operator compares two items and the result has a Boolean

value.
A : complex
B : relational
C : unary
D : remainder

Correct Answer : B

59 : A(n) _____ number contains decimal positions.
A : char
B : int
C : float
D : boolean

Correct Answer : C

60 : ____ forces a value of one data type to be used as a value of another type.
A : Type casting
B : Lossless conversion
C : A type-wrapper class
D : Parsing

Correct Answer : A

61 : Which line of code correctly creates a Scanner object?
A : Scanner inputDevice = new Scanner(System);
B : Scanner inputDevice = new Scanner(System.in)
C : Scanner inputDevice = new Scanner(in);
D : Scanner inputDevice = new Scanner(System.in);

Correct Answer : D

62 : Which statement declares a constant named SALESAMT with a value of 20.99?
A : double SALESAMT = 20.99;
B : final SALESAMT = 20.99;
C : final double SALESAMT = 20.99;
D : final double SALESAMT (20.99);

Correct Answer : C

63 : The Scanner class contains methods that retrieve values called ____.
A : prompts
B : whitespace
C : finals
D : tokens

Correct Answer : D

64 : A dialog box that displays the options Yes, No, and Cancel can be created using the ____ method in the JOptionPane class.
A : showDialog()
B : showConfirmDialog()

C : JOptionDialog()
D : ConfirmDialog()

Correct Answer : B

65 : The cast operator is a ____ operator.
A : unary
B : binary
C : ternary
D : boolean

Correct Answer : A

66 : A data item's ____ is the area in which it is visible to a program and in which you can refer to it using its simple identifier.
A : data type
B : token
C : case
D : scope

Correct Answer : D

MATCHING

67 : Match each term with the correct statement below.

A : true or false	A : operand
B : A simple data type	B : cast operator
C : A programming term for an unknown value	C : assignment
D : Also called the type-ahead buffer	D : operator precedence
E : Uninitialized constant	E : garbage value
F : Rules for the order in which parts of a mathematical expression are evaluated	F : primitive type
G : Converts nonconforming types to the unifying type	G : float
H : Can appear on the left side of an assignment operator	H : boolean
I : Break into component parts	I : escape sequence
J : The operator that is represented by an equal sign (=)	J : primitive type
K : A value that can be used on either side of an operator	K : blank final
L : Begins with a backslash followed by a character	L : parse
M : A floating-point data type	M : promotion
N : Java consistently specifies their size and format	N : keyboard buffer
O : Created by placing the desired result type in parentheses	O : lvalue

Correct Answer :
A : H

B : J

C : E

D : A13

E : K

F : D

G : A12

H : A14

I : A11

J : C

K : A

L : I

M : G

N : F

O : B